

Amendments to the Specification:

Please add the following new paragraph after the paragraph beginning at page 2, line 30.

Brief Description of the Drawings

- Figure 1 A table illustrating the properties of two polar polymer-like plasma coatings of the present invention.
- Figure 2a An illustration of the chemical structure of the hydrophilic layer showing the X-ray photo-electron spectroscopy of sample 8/PET in Figure 1.
- Figure 2b An illustration of the chemical structure of the hydrophilic layer showing the X-ray photo-electron spectroscopy of sample 10/PET in Figure 1.
- Figure 3 An illustration of the surface tension of samples 3/PET and 4/PET in Figure 1.

Please replace the paragraph beginning at page 5, line 27, with the following amended paragraph.

Also the ratio between the inorganic gas components such as for example oxygen, nitrogen, ammonia or carbon monoxide or carbon dioxide, and the organic compound, depends on the properties required for the coating. The ratio can vary greatly depending on the components contained in the gas mixture or working gas. ~~Table 1 compares~~ Figure 1 illustrates two examples. In addition to the said components, naturally further constituents such as in particular inert gases for example argon or helium etc., can be used.

Please replace the paragraph beginning at page 6, line 28, with the following amended paragraph.

At a basic pressure of for example lower than 3×10^{-6} mbar, a plasma reactor is flooded with the process gas mixture until the required process pressure is achieved, for example 1.6×10^{-2} mbar. In the present examples a microwave discharge (2.45 GHz) was then ignited while the process gases were supplied continuously. A coating with a polar proportion of 41% and a surface tension of 50 mN/m was achieved with a gas mixture of 48 sccm (standard cubic cm per minute) CO₂, 12 sccm CH₄ and 12 sccm Ar with a microwave power of 62 Watts (specimen 10/PET). The substrate was a 12 µm thin PET film or a 20 µm thin polypropylene film (specimen 2/BOPP), representative of polymer substrates. An increase in process pressure up to atmospheric pressure leads to a high deposition rate and is presently the state of optimisation of coatings. ~~Table 1~~ Figure 1 also shows that by varying the power and process gas mixture, the required surface tension for the corresponding substrate can be achieved. Comparison of the various gas mixtures in ~~table 1~~ Figure 1 shows that the gas mixture has a greater influence on the hydrophilicity than varying the power supplied to the plasma by 80 Watts. ~~Table 1~~ Figure 1 shows the coatings which were produced between July and October 1997 and for which the surface tension was again measured in January 1998 and 1999.

Please replace the paragraph beginning at page 7, line 32, with the following amended paragraph.

The chemical structure of the hydrophilic layers is clear from the enclosed figures 2a and 2. The two figures 2a and 2b show the XPS spectra (= X-ray photo-electron spectroscopy) of C (1s), specimens 8 and 10 (PET) on ~~table 1~~ Figure 1. The surface areas shown in figures 2a and 2b are representative of the following bonds: 1 for O-C=O, 3 for C=O, 5 for C-O, 7 for C-H. C-O bonds are present in alcohol and ether, C=O in ketones and aldehydes and O-C=O in esters and

carboxylic acids. The standardized numbers of count N (E) are shown in function of the binding energy (eV).

Please replace the paragraph beginning at page 8, line 35, with the following amended paragraph.

The wettability of all samples or coatings listed in ~~table 1~~ Figure 1 is between 20 and 63 mN/m (to DIN-EN 828 (draft)). In relation to the examples of generated coatings summarized in ~~table 1~~ Figure 1, it is important to emphasise that the coatings generated in this way remain polar. As has been proven, these remain polar for at least twelve months from which it can presumably be concluded that these coatings remain stable for years.